

REVIEW

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Coxiella burnetii associated reproductive disorders in domestic animals-a critical review

Jørgen S Agerholm

Abstract

The bacterium *Coxiella burnetii* has been detected in the fetal membranes, birth fluids and vaginal mucus, as well as in the milk and other excretions of several domestic mammals. The finding of *C. burnetii* in association with abortion, parturition and in the postpartum period has led to the hypothesis that *C. burnetii* causes a range of reproductive diseases. This review critically evaluates the scientific basis for this hypothesis in domestic mammals. The review demonstrates a solid evidence for the association between *C. burnetii* infection and sporadic cases of abortion, premature delivery, stillbirth and weak offspring in cattle, sheep and goats. *C. burnetii* induced in-herd epidemics of this complete expression of reproductive failure have been reported for sheep and goats, but not for cattle. The single entities occur only as part of the complex and not as single events such as generally increased stillbirth rate. Studies show that *C. burnetii* initially infects the placenta and that subsequent spread to the fetus may occur either haematogenous or by the amniotic-oral route. The consequences for the equine, porcine, canine and feline conceptus remains to be elucidated but that infection of the conceptus may occur is documented for most species. There is no solid evidence to support a hypothesis of *C. burnetii* causing disorders such as subfertility, endometritis/metritis, or retained fetal membranes in any kind of domestic animal species.

There is a strong need to validate non-pathology based methods such as polymerase chain reaction for their use in diagnostic and research in relation to establishing *C. burnetii* as the cause of abortion and to adapt an appropriate study design and include adequate control animals when linking epidemiological findings to *C. burnetii* or when evaluating effects of vaccination in production herds.

Keywords: *Coxiella burnetii*, Q fever, Reproduction, Abortion, Cattle, Sheep, Goat, Buffalo, Pig, Dog, Cat